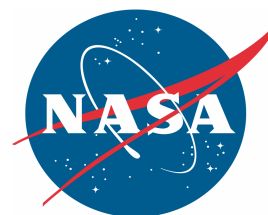


NASA Facts

National Aeronautics and
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FACT SHEET

October 2007

SPACE SHUTTLE DISCOVERY (STS-120)

Space shuttle Discovery's upcoming 14-day mission, designated STS-120, will take into orbit a connecting module that will increase the International Space Station's interior space. Node 2, known as Harmony, will provide attachment points for European and Japanese laboratory modules, to be installed later this year and early next year, respectively. The shuttle also will deliver a new crew member and bring back another one after a five-month mission. The Discovery crew will move the station's P6 truss segment and arrays to their permanent position at the very end of the left side of the station's backbone, or truss. The arrays have been attached to the middle of the truss for the past seven years, acting as a temporary power system. There are five spacewalks scheduled, including one to evaluate a shuttle tile repair technique. *(For more details, see Press Kit, p. 1)*

CREW (Press Kit, p. 17)

	Pam Melroy Commander (Colonel, U.S. Air Force Retired) <ul style="list-style-type: none">• Veteran of two spaceflights, pilot on STS-92 in 2000 and STS-112 in 2002• Age: 46, Hometown: Rochester, N.Y.• Second woman to command a shuttle mission		George Zamka (ZAM-kuh) Pilot (Colonel, U.S. Marine Corps) <ul style="list-style-type: none">• First spaceflight• Age: 45, Born: Jersey City, N.J.• Married with two children; enjoys weight lifting, running, bicycling, scuba and boating
	Scott Parazynski (pear-ah-ZIN-skee) Mission Specialist (M.D.) <ul style="list-style-type: none">• Veteran of four spaceflights• Will perform four spacewalks• Age: 46, Born: Little Rock, Ark.• Residency in emergency medicine• Enjoys mountaineering, flying and scuba		Doug Wheelock Mission Specialist (Colonel, U.S. Army) <ul style="list-style-type: none">• First spaceflight• Will perform three spacewalks• Age: 47, Hometown: Windsor, N.Y.• Graduated: U.S. Military Academy, West Point• Call Sign: Wheels
	Stephanie Wilson Mission Specialist <ul style="list-style-type: none">• Veteran of one spaceflight, STS-121 in 2006• Age: 41, Born: Boston, Mass.• Bachelor's degree from Harvard University, master's degree from University of Texas• Enjoys snow skiing, music, stamp collecting		Paolo Nespoli (NES-po-lee) Mission Specialist <ul style="list-style-type: none">• European Space Agency astronaut; joined ESA in 1991• First spaceflight• Age: 50, Born: Milan, Italy• Enjoys scuba diving and piloting aircraft
	Daniel Tani (TAW-nee) Mission Specialist <ul style="list-style-type: none">• Veteran of one spaceflight, STS-108 in 2001• Age: 46, Hometown: Lombard, Ill.• Expedition 16 crew member, returning to Earth on shuttle mission STS-122, targeted for launch December 2007		Clayton Anderson Mission Specialist <ul style="list-style-type: none">• Expedition 15/16 Flight Engineer• Launched to the station in June 2007• Age: 48, Hometown: Omaha, Neb.• Interests include officiating college basketball, coaching youth sports, writing music



The STS-120 patch reflects the role of the mission in the future of the space program. The shuttle payload bay carries Harmony, the station's doorway to the future international laboratories. The star on the left represents the station; the red points represent the current location of the P6 solar array. The gold points represent the P6 solar array in its new location, unfurled and producing power for science and life support. On the right, the moon and Mars can be seen representing the future of NASA. The constellation Orion rises in the background, symbolizing NASA's new exploration vehicle. Through all, the shuttle rises up and away, leading the way to the future.

Spacewalks: Each will last approximately 6.5 hours. (*Press Kit, p. 51*)

- On flight day 4, Wheelock, riding on the station's robotic arm, will remove the S-band Antenna Structural Assembly from the Z1 truss and deliver it to Discovery's payload bay for return to Earth. Wheelock and Parazynski will work in the bay to prepare Harmony for removal. Once complete, the station's arm will take Harmony from the shuttle and begin moving it toward its position on Unity. Next, Parazynski will transfer ammonia fluid lines from the P6 truss to Z1.
- On flight day 6, with the station's arm grabbing P6, Parazynski and Tani will disconnect cables, grounding straps and bolts from the truss to remove it from Z1. The robotic arm then will remove P6 for relocation. Tani will prepare the radiator on S1 truss to be deployed from the ground later. He will then re-route electrical lines for P6 once it's re-installed. The astronauts will work on external outfitting of Harmony.
- On flight day 8, Parazynski and Wheelock will assist with the robotic arm attachment of P6 in its new location on P5. Parazynski will prepare the P6 radiator for deployment from the ground later. He then will reconfigure electrical connectors that allowed the ground to deploy the S1 radiators earlier in the mission.
- On flight day 10, Parazynski and Wheelock will evaluate the Shuttle Tile Ablator-54, or STA-54, material and a tile repair ablator dispenser for use as a space shuttle thermal protection system repair technique. The Tile Repair Ablator Dispenser, or T-RAD, is similar to a caulk-gun. Parazynski will use T-RAD to mix and squirt out the STA-54 material into holes in several demonstration tiles. The repaired samples will be return to Earth for extensive testing.
- On flight day 11, Expedition 16 crew members Peggy Whitson and Yuri Malenchenko will prepare for the permanent installation of Harmony on the Pressurized Mating Adapter-2. They also will transfer tools needed for future spacewalks.



Figure 1: a detailed view of Harmony

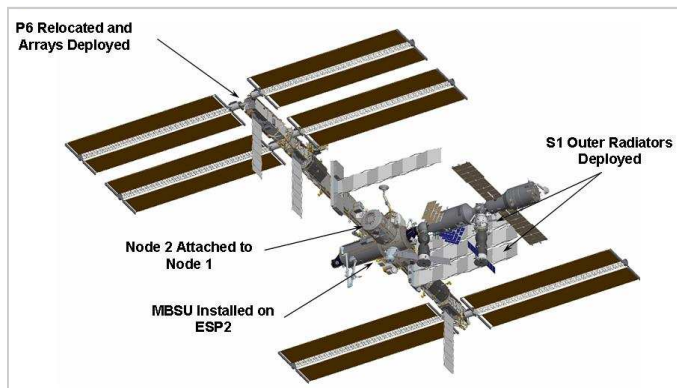


Figure 2: space station configuration after STS-120

FACTS & FIGURES

- STS-120 is the 120th space shuttle flight, the 34th flight for space shuttle Discovery and the 23rd flight to the station.
- This mission includes the most number of spacewalks conducted while the shuttle is docked to the station.
- This is the first time female commanders will lead shuttle and space station missions at the same time. Astronaut Peggy Whitson is the commander of the station's Expedition 16 mission.
- Since the shuttle will be docked to an existing adapter port where Harmony is meant to attach, the node will be installed in a temporary spot on the Unity node. The station crew will move it after the shuttle leaves.
 - Built in Italy for the United States, Harmony is a 23.6- by 14.5-foot passageway with a pressurized volume of 2666 cubic feet. The node weighs 31,500 pounds at launch.
 - Harmony will be the first new U.S. pressurized component to be added to the station since the Quest Airlock was attached to one of Unity's six berthing ports in 2001.
 - Harmony was named in a nationwide academic competition. Six different schools submitted "Harmony." Students from each school will attend Discovery's launch.
- Luke Skywalker's lightsaber will be flown on Discovery in honor of the 30th anniversary of the Star Wars franchise.
- Nearly 17,000 NASA civil servants and contractors across the country contribute to the agency's Space Shuttle Program.